

**Notice of Allowability**

Application No.

10/620,534

Applicant(s)

CHANG ET AL.

Examiner

Jung Kim

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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/24/07.
2. ☒ The allowed claim(s) is/are 86, 87, 94, 95, 103-105 and 120-122.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                               | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material         | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other _____   |

**DETAILED ACTION**

***Allowable Subject Matter***

1. Claims 86, 87, 94, 95, 103-105 and 120-122 are allowed.
2. The following is an examiner's statement of reasons for allowance:
3. As per claims 86, 87, 103 and 120-122, applicant's claimed invention discloses a computer implemented method for adding tamper resistance to a software program and a computer readable media having a software program recorded thereon, wherein the program performs the method, the method comprising: selecting a program block that computes a result necessary for proper execution of the software program, the program block comprising at least one program instruction selecting a silent guard for the program block; selecting an insertion point in the software program; selecting a program variable in the software program; determining the expected value of the program variable at the insertion point; determining the expected value of the silent guard at the start of execution of the program block, such that the runtime value of the silent guard equals the expected value of the silent guard if the runtime value of the program variable equals the expected value of the program variable at the insertion point; and installing a first computation dependent on the silent guard in the software program, such that if the runtime value of the silent guard is not equal to the expected value of the silent guard then the first computation causes the result computed by the program block to evaluate improperly, causing the software program to execute.

4. The prior art of record discloses a similar apparatus and method. However, the prior art does not disclose nor suggest either singularly or in combination the limitation installing a second computation that includes the runtime value of the program variable, such that the result of the second computation is corrupted if the runtime value of the program variable is not equal to the expected value of the program variable at the insertion point; and setting the silent guard equal to the result of the second computation.

5. As per claims 94 and 104, applicant's claimed invention discloses a recordable computer media having a tamper resistant software program recorded thereon, the tamper resistant software program comprising: a program variable having an expected value at a first dependency point in the software program and an expected value at a second dependency point in the software program, the expected value at the first dependency point not being equal to the expected value at the second dependency point; a silent guard variable having an expected value at the first dependency point; a mathematical computation that includes the runtime value of the silent guard variable and an expected term, the expected term being set based on the expected value of the silent guard variable at the first dependency point; a supplementary silent guard variable having an expected value at the second dependency point in the software program; wherein the runtime value of the program variable is dependent on the result of the mathematical computation which is dependent on the runtime value of the silent guard variable, such that the runtime value of the program variable will not equal the expected

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value of the program variable at the first dependency point if the runtime value of the silent guard variable does not equal the expected value of the silent guard variable at the first dependency point, which will cause the software program to execute improperly.

6. The prior art of record discloses a similar apparatus. However, the prior art does not disclose nor suggest either singularly or in combination the limitation wherein the runtime value of the program variable at the second dependency point is dependent on the runtime value of the supplementary silent guard variable, such that the runtime value of the program variable will not equal the expected value of the program variable at the second dependency point if the runtime value of the supplementary silent guard variable does not equal the expected value of the supplementary silent guard variable at the second dependency point, which will cause the software program to execute improperly.

7. As per claims 95 and 105, applicant's claimed invention discloses a recordable computer media having a tamper resistant software program recorded thereon, the tamper resistant software program comprising: a program variable having an expected value at a first dependency point in the software program and an expected value at a second dependency point in the software program, the expected value at the first dependency point not being equal to the expected value at the second dependency point; a silent guard variable having an expected value at the first dependency point and an expected value at the second dependency point in the software program; a

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mathematical computation that includes the runtime value of the silent guard variable and an expected term, the expected term being set based on the expected value of the silent guard variable at the first dependency point; wherein the runtime value of the program variable is dependent on the result of the mathematical computation which is dependent on the runtime value of the silent guard variable, such that the runtime value of the program variable will not equal the expected value of the program variable at the first dependency point if the runtime value of the silent guard variable does not equal the expected value of the silent guard variable at the first dependency point, which will cause the software program to execute improperly.

8. The prior art of record discloses a similar apparatus. However, the prior art does not disclose nor suggest either singularly or in combination the limitation wherein the runtime value of the program variable at the second dependency point is dependent on the runtime value of the silent guard variable at the second dependency point, such that the runtime value of the program variable will not equal the expected value of the program variable at the second dependency point if the runtime value of the silent guard variable does not equal the expected value of the silent guard variable at the second dependency point, which will cause the software program to execute improperly.

9. For these reasons claims 86, 87, 94, 95, 103-105 and 120-122 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Communications Inquiry***

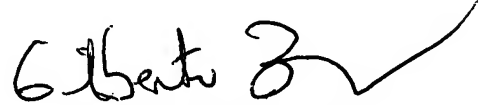
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jung W. Kim whose telephone number is 571-272-3804. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jung Kim  
Examiner AU 2132  
June 2, 2007



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